

# GREENSCENE

## E - M A G A Z I N E

South Carolina's Environmental News for Educators ● "News Teachers Can Use!"

### Spinning a Web of Educational Resources

by Carol Roberts

In DHEC's outreach and education sections, we're working to enhance environmental stewardship every day. As a part of this quest, we want to ensure that teachers and students have access to a variety of useful programs and materials geared toward environmental education. You already may be one of the more than 20,000 teachers that have been trained to teach lesson from our environmental curriculum, *Action for a Cleaner Tomorrow: A South Carolina Environmental Curriculum Supplement*. You may know a classroom that has already claimed their scholarship money and been highlighted in a public service announcement through our *Champions of the Environment* program. Many students utilize our fact sheets that cover a variety of topics from ozone in the air to information about recycling.

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**The new Web site at  
[www.scdhec.gov/eqc/outreach](http://www.scdhec.gov/eqc/outreach)  
consolidates access to our educational  
programs in one Web location.**

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We are happy to announce that consolidated information on our programs and materials is now available through a new Web site located at [www.scdhec.gov/eqc/outreach](http://www.scdhec.gov/eqc/outreach). Not only does the site contain links to the programs and materials mentioned above, but it also includes the daily ozone forecast and information on joining our new classroom competition about air quality, *Ozone Action Class*. You will also find out about our *Water Watch* program that already works with many groups across the state working to protect water quality in their local neighborhoods. The *Green Driver Project* is for students in high school driver education classes. The Project teaches students about the environmental impact of driving. Students learn the importance of used oil recycling, and related air, water and energy issues.

No matter what program or materials you are interested in working with, access them all via one Web address at [www.scdhec.gov/eqc/outreach](http://www.scdhec.gov/eqc/outreach). All our programs, publications and videos are accessible, and we're growing everyday. While visiting, don't forget to let us know what we can do to improve the site for your use. Any changes or improvements you would like to see can be sent to [robertck@dhec.sc.gov](mailto:robertck@dhec.sc.gov). We look forward to working with you as we work together in enhancing environmental stewardship every day.



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# S.C. leads the nation in recycling commitment

by Holly Storey

More than 30,000 South Carolinians pledged to recycle and buy recycled products this year, vaulting the state into the lead among 45 participating states for the most pledge cards collected.

America Recycles Day is held annually on November 15 to promote recycling and buying recycled products made from recycled materials. One of the centerpiece efforts of the celebration is for states to have residents sign challenge cards pledging to recycle or buy recycled content products.

Winning challenge cards for three state prizes were drawn November 25, 2003. Dawn Helms of Clover won the state's grand prize, \$1,000, sponsored by the S.C. Soft Drink Association. Ms. Helms filled out a challenge card from her local newspaper.

Sarah Hill of Columbia won the two-night stay at the Cypress Inn, a green bed and breakfast, in Conway. Ms. Hill, a teacher at Prosperity-Rikard Elementary School in Prosperity, completed her challenge card at a summer workshop for teachers.

Courtney Adams of Rock Hill won a Trek bicycle, sponsored by Al Can Aluminum Corporation. The bicycle is made from recycled aluminum. Courtney is a student in a York County middle school.

In addition, three essay contests sponsored by International Paper, were held to recognize a teacher, school and family who were doing their part to make "Every Day America Recycles Day." The 2003 winners include Cynde O'Rear from Hartness-Thornwell Elementary School in Clinton as Recycling Teacher of the Year, Horrell Hill Elementary School in Columbia as Recycling School of the Year and the Webster Family from Spartanburg as the All-American Recycling Family of the Year.

An ARD statewide steering committee made up of state and local governments, businesses, industries and nonprofit organizations held local events to make residents aware of the importance of protecting the environment.

Fourth- and fifth-grade students from across the state participated in three ARD Recycling Adventures that were held at Fort Jackson, Oconee County and York County. Students learned about recycling, litter pick-up relays and recycling crafts.

Residents from across the state received America Recycles Day challenge cards from their local recycling centers and in their local newspapers.

The steering committee members include Chester County Recycling, Dorchester County Recycling, Fisher Communications, Fort Jackson, Horry County Solid Waste Authority, International Paper, Keep the Midlands Beautiful, Nucor Steel, Oconee County Recycling, Orangeburg County Soil and Water Conservation District, Palmetto Pride, Paper Stock Dealers/Sonoco, Richland County Soil and Water Conservation District, Rock Hill Clean & Green, S.C. Department of Commerce, S.C. Department of Education, S.C. Department of Health and Environmental Control, S.C. Energy Office, S.C. Soft Drink Association, U.S. Postal Service and York County Collection and Recycling.

# Champions of the Environment

by Lynne LaSalle

Champions of the Environment began in 1992 with the goal of encouraging students to preserve our environment. Champions of the Environment is proudly sponsored by INVISTA, International Paper, WIS-TV and DHEC. Champions consists of the Monthly Award Program and the Environmental Awareness Competition. Over the past twelve years, Champions has rewarded thousands of South Carolina's students and educators for their knowledge, pollution prevention projects, and environmental activities.

The Monthly Award Program gives out one \$500 grant per month. The grant allows winners to improve and expand their activities. At the end of the school year, three overall winners are chosen to receive an additional \$5,000, \$3,000 or \$2,000 award. The Champions' partnership looks for projects that involve students and have long-term potential. The most recent winners in the Monthly Grant Program include:

- The Environmental Science Club, John Ford Middle School, St. Matthews. Under the direction of teacher Abraham Funchess, these students maintain the school's outdoor laboratory. They also promise to be environmentally responsible in their everyday lives. Recycling and waste reduction are important to these young environmentalists.



- The pre-kindergarten classes, Hilton Head Elementary School, Hilton Head Island. Teacher Maury Moody hopes to foster an appreciation for nature in her young students. The Children's Garden is a great place for children to learn about the environment. Little learners care for the garden, watch for visiting wildlife and create artwork based on the garden. The garden is a great tool for the many Spanish-speaking children who are enrolled in the school.



- Meghan Baker and Carri Carver Wallace, Horticulture Students, Clemson University. These two students are working on the Ethnobotany Garden. This new garden will soon be found in the Children's Garden at the S.C. Botanical Garden. Ethnobotany is the connection between people and plants. Children from the Sprouting Wings garden and nature club will help college students prepare and plant the Ethnobotany garden. Carrie and Meghan will also create environmental lessons and a traveling trunk with materials from the garden.

Champions of the Environment is also preparing to host the Annual Environmental Awareness Competition. Middle school students are invited to compete in one or more of the five divisions—essay, photography, poster, spokesperson and quiz bowl. All divisions except the quiz bowl must relate to the annual theme. Winners and finalists in each division receive saving bonds. The essay, photography and poster contest are pre-judged. The spokesperson and quiz bowl contest take place at Riverbanks Zoo and Garden.

To find out more about the programs listed above, visit the Champions' Web page, [www.scdhec.gov/champions](http://www.scdhec.gov/champions), or call Lynne LaSalle (803) 898-4394.

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**ADOPT-A-SCHOOL** is a program sponsored by the Water Environment Association of South Carolina (WEASC). The goal of the program is to "adopt" schools by providing guest speakers, presentations and tours of wastewater treatment plants. Free water quality educational resources are available. For more information, call (803) 898-4180.





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# Household Plants and Indoor Air Pollution

by Sonya M. Younger

Having one or two plants in each room of your living unit and office has been noted as a natural way to remove toxins from indoor air. Many house plants literally consume the chemical pollutants that pervade modern homes and may be responsible for health problems from sore throats to cancer. For less than the price of one doctor visit for a sore throat, house plants can clean the air in your home and make it safer for you to breathe. Even putting a plant on your desk would improve air quality in the immediate vicinity. The Foliage for Clean Air Council, a communications clearinghouse for information on the use of foliage to improve indoor air quality, recommends a minimum of two plants per 100 square feet of floor space in an average home or office with eight- to ten-foot ceilings.

A hanging perennial, the *Boston Fern* (*Nephrolepis exaltata*) is known to remove formaldehyde (commonly found in carpet) at a rate of 1,863 micrograms per hour and xylene

(commonly found in paints, glues, and pesticides) at a rate of 208 micrograms per hour. If you've recently bought new furniture or carpeting, place one or two Boston Ferns in each of the appropriate rooms. These plants are for low maintenance and they also grow well in the bathroom.



The *English Ivy* (*Hedera helix*) is especially effective in a room that has been freshly painted or carpeted. Helpful in the removal of formaldehyde at a rate of 1,120 micrograms per hour and xylene at a rate of 131 micrograms per hour, English Ivy are also beneficial in a room that contains plastic equipment or furnishings (computers, printers, fax machines) or ink. Recommended for rooms and offices with bright light.

The *Spider Plant* (*Chlorophytum comosum*) has been known to remove xylene at a rate of 268 micrograms per hour and formaldehyde at a rate of 560 micrograms per hour. The spider plant is mainly known for the removal of the pollutant carbon monoxide.



All indoor plants will improve the quality of the air you breathe, but some are better than others. The following is a list of plants you might also consider:

- Lady palm (*Raphis excelsa*)
- Rubber plant (*Ficus robusta*)
- Dragon tree (*Dracaena marginata*)
- Peace lily (*Spathiphyllum*)
- Poinsettia (*Euphorbia pulcherrima*)
- Christmas cactus (*Schlumbergera bridgesii*)

*Continued on the following page*



# Is Your School Ready for the 2004 Ozone Season?

By Amy Curran

It's cold outside now, but not for long. Ozone season is just around the corner! Is your school ready for it?

The warmer months of the year provide weather conditions that are favorable for the formation of ground-level ozone. This type of air pollution is formed when nitrogen oxides and volatile organic compounds react in the presence of heat and sunlight. Sources of nitrogen oxides include cars, trucks and industry, which emit pollutants when fossil fuels are burned. Examples of volatile organic compounds include natural sources such as pine trees, as well as vapors emitted from paints, glues and solvents.

Ozone season doesn't officially start until April, so you have plenty of time to get your class prepared. One program that can help the school prepare for the upcoming ozone season is the "Ozone Action Class." This program was developed with the intent of engaging South Carolina educators and students to find solutions for air pollution. "Ozone Action Class" is a Web-based program that offers suggestions for student projects to help reduce air pollution, and it includes resource materials to enhance student involvement, as well as links to similar Web sites.

Participation in the "Ozone Action Class" will promote students' learning as they are given opportunities to:

- Improve their problem-solving skills by providing pollution solutions
- Develop their interest in core subject areas by learning through the environment
- Become involved in community outreach
- Become responsible stewards of the environment



The Department of Health and Environmental Control's Bureau of Air Quality provides a daily update of ground-level ozone concentrations during ozone forecasting season, which is from May 1<sup>st</sup> through September 30<sup>th</sup>. To receive more information on Ozone Action Class, the ozone forecast or air quality, go to [www.scdhec.gov/baq](http://www.scdhec.gov/baq).

## Plants, from page 4

Use house plants to provide a fresh supply of oxygen and moisture, as well as to remove VOC buildup. Although forced ventilation is many times faster in providing air exchange, plants do it without noise, without costly installation, and with pleasing *natural* settings and aromas.

### Remember

Indoor houseplants **should not be over-watered** because overly damp soil may promote the growth of microorganisms that can affect allergic individuals. The soil needs to be replaced occasionally, and it should not be kept thoroughly wet, to preclude mold colonization.

For additional information and resources on indoor air quality, please contact Ms. Younger at SC DHEC, Bureau of Air Quality, Air Education and Outreach Section, 2600 Bull St., Columbia, SC 29201, phone: (803) 898-4462, fax: (803) 898-4467, E-mail: [youngesm@dhec.sc.gov](mailto:youngesm@dhec.sc.gov)

### References:

- Wolverton, Dr. B.C.; Healthy Home and Office, [www.gdrc.org/uem/stat-plants.html](http://www.gdrc.org/uem/stat-plants.html)
- Indoor Air Pollution, [http://topics.practical.org/browse/Indoor\\_air\\_pollution](http://topics.practical.org/browse/Indoor_air_pollution)
- Indoor Pollution, [www.geocities.com](http://www.geocities.com)
- Green Design, [www.greendesign.com](http://www.greendesign.com)

Mark your calendar! The sixth annual Energy 2 Learn (E2L) workshop is set for Wednesday, June 23, 2004. E2L is a comprehensive workshop for K-12 teachers. There is no charge to register and the registration deadline is May 14. The workshop is limited to 200 teachers. For more information or to register, call 1-800-768-7348.



# NEW

*Action for a cleaner tomorrow: A South Carolina Environmental Curriculum Supplement* ("Action") is a national award-winning kindergarten through 12th grade, activity-based, interdisciplinary curriculum supplement. Developed by teachers and DHEC's Office of Solid Waste Reduction and Recycling Office in conjunction with the S.C. Department of Education and others, "Action" can serve as a starting place for introducing basic environmental education in the classroom. "Action" includes lessons on air, energy, recycling, water and other environmental issues.

The curriculum supplement has recently been updated and is correlated to the state's language arts, math, science and social studies standards. "Action" is available only as part of a three-hour training provided by the Office. For more information about "Action" and how to participate in training, call 1-800-768-7348.

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provided electronically.  
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The GreenScene e-magazine  
is a publication of the  
Environmental Quality Control  
Education and Outreach Workshop.

Design—Gregg Glymph  
Layout—SC DHEC Art Department



South Carolina Department of Health  
and Environmental Control

CR-005980 2/04

## National Radon Action Month January 2004

by Reggie Massey

The U.S. Environmental Protection Agency and organizations nationwide designate January as *National Radon Action Month* to encourage the public to test their homes, schools, and workplaces for radon and to take action to reduce radon levels whenever necessary.

Radon is a colorless, odorless, tasteless gas that is produced during the radioactive decay of uranium. Radon is a class A carcinogen, known to cause cancer in humans, and is the second leading cause of lung cancer. The National Academy of Science released its report on radon and lung cancer, *The Health Effects of Exposure to Indoor Radon*, in 1998. The report estimates that radon causes between 15,000 and 22,000 lung cancer deaths per year in the United States and that 12 percent of all lung cancer deaths are linked to radon. The Indoor Air/Radon/BEIR VI Report/Public Summary can be found at [www.epa.gov/iaq/radon/public.html](http://www.epa.gov/iaq/radon/public.html).

Since January 2004 is all but gone, another opportunity to raise radon awareness for students will be in October during *National Indoor Air Quality Action & Awareness Month*. Each week of the month will focus on a different indoor air quality topic to include asthma, secondhand smoke, lead, radon, and general indoor air quality issues.

One of the associated events is a Radon Action Week Poster Contest for children in grades 4–8. Though the details for this year's poster contest have not yet been announced, the winning posters are typically unveiled at an awards ceremony in Washington, D.C. with the winner and their chaperone winning an all-expense paid trip to participate.

Please contact Reggie Massey at the S.C. Department of Health and Environmental Control's Indoor Radon Grant Program if you are interested in more information regarding the radon poster contest. Reggie can be reached at (864) 241-1090. Program personnel welcome the opportunity to provide classroom radon presentations where appropriate.

Energy 2 Learn (E2L) is a comprehensive kindergarten through 12<sup>th</sup> grade energy education program designed specifically for South Carolina students and teachers.

E2L includes correlated lessons from "Action for a cleaner tomorrow: A South Carolina Environmental Curriculum Supplement," science fair projects, recognition programs for schools, students and teachers as well as other materials and resources including special classroom presentations for sixth-grade students.

The presentations are available on a first-come, first-served basis.



Many of the materials offered include South Carolina-specific energy information only available from the E2L program that provides students a unique, personal life-long understanding of the state's energy usage and needs.

For more information about E2L program, please visit [www.scdhec.gov/recycle/html/e2l.html](http://www.scdhec.gov/recycle/html/e2l.html) or call 1-800-768-7348.